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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,538	12/02/2004	Bernard Teneze	L7307.04148	4464

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EXAMINER	
DOBSON, DANIEL G	
ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,538	TENEZE ET AL.	
	Examiner	Art Unit	
	DANIEL G. DOBSON	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/29/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *1-7 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 04/29/2008 have been fully considered but they are not persuasive.

Applicant's first argument is that *Knapp* and *Blom* disclose illuminating a target where claimed invention locates a moving object but not the target of the moving object (Applicants Remarks, 04/29/2008, p. 4.) The claims are interpreted to require a method for producing an optical link with laser pulses between the emitter and a receiver. The portion reciting "the optical link being used . . ." is interpreted as an intended use for a method for producing an optical link. Accordingly this portion of the preamble is not interpreted to limit the scope of the claim.

Even if read to limit the claims, *Knapp* clearly discloses that the moving object emits the radiation (Fig's. 2, 4 and 5) and that the electronics track the moving object (Col. 4, ll. 36-47.) Furthermore, the claims do not specify whether the moving body or the locator is emitting pulses. Thus, references reciting either limitation read upon the claims.

Applicant's second argument is that the delay timer disclosed by *Knapp* is intended to conserve electric power in contrast to the claimed delay intended to protect the eyes of the humans (Applicants Remarks, 04/29/2008, p. 5.) This feature may be disclosed in Applicant's specification, but the limitation is not read

into the claims. The claims only require that the pulses are delayed with respect to departure of the moving body (*Knapp* discloses this limitation.)

Applicant's third argument is that the references to not teach or suggest the present claimed subject matter (Applicants Remarks, 04/29/2008, p. 5.) The examiner respectfully disagrees. Please see rejection below.

Claim Rejections - 35 USC § 103

2. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,880,467 B1 to Knapp, U.S. Patent 3,371,232 to Hannan et al., U.S. Patent 4,216,520 to Horblin, Publication "Pulsed Laser Flashlamps and Power Supplies" (*PLF*), and Publication "Intensity: the Inverse Square Law" (*Intensity*.)

As to **Claim 8**, *Knapp* discloses a method for producing an optical link (Col. 1, ll. 36-45) with laser pulses (Col. 3, ll. 17-8) between an emitter (Col. 3, ll. 36-7) of the pulses and a receiver (Fig. 1, 18, receiver) of the pulses, the optical link being used by a locating device for locating a body (Fig. 1, 10, round) moving at constant speed away from the locating device, the method comprising:

delaying the start of emission of the laser pulses with respect to the departure of the moving body (Col. 3, ll. 13-7); and

Knapp discloses pulsing the laser but does not disclose the details of how this is accomplished. *Hannan* discloses producing laser pulses by alternatively and successively charging and discharging a capacitor (Fig. 1, 23, Col. 2, ll. 25-34),

controlling the successive charges of said capacitor by successive rectangular charging pulses (the timing of switch 1 being closed defines a rectangular pulse, and may be adjusted as desired, Col. 2, ll. 27-28.)

supplying said emitter with the successive discharges of said capacitor (Fig. 1, laser diode 15 emits when the capacitor discharges.)

Hannan does not disclose that the charging pulses have linear increasing durations, however *Horblin*, *PLF*, and *Intensity* disclose certain facts known to a person of ordinary skill in the art(POSITA) which would make it obvious to do so.

The first is that when designing a link between a rocket and a controller the square law dependence of irradiance on distance must be taken into account (intensity falls off by the square of the distance.) (*Intensity*.)

The second is that the energy stored in a capacitor (thereby available to be discharged as a beacon) is governed by the equation E=1/2 *C*V^2. (*PLF*.)

The third is that the voltage on a capacitor is governed directly by the width of the charging pulse. (*Horblin*.)

In view of these facts a POSITA would increase the intensity of the beacon to compensate for the square law loss. In view of the second fact, a POSITA must increase the voltage on the capacitor to achieve the higher radiated power. In view of the last fact, increasing the charging time of the capacitor over time would achieve that goal. All of these parameters (charge voltage, charging time, capacitance, etc.) are changeable based on desired criteria as a matter of design choice.

Knapp discloses a body moving a constant speed away from the locating device. Therefore, distance is increasing at the same rate as time, and received intensity (at the locating device) is decreasing by the square of distance (and therefore time.) Because transmitted intensity (E) is related to the square of voltage (V), a linearly increasing voltage will result in an intensity increasing by the square (thus compensating for a decreasing intensity.) Linearly increasing the charge time of the capacitor achieves a linearly increasing voltage.

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to use the pulse generator disclosed by *Hannan* in the modulator disclosed by *Knapp*. The suggestion/motivation would have been to produce high power laser pulses with high efficiency. It would have also been obvious to linearly increase the charging time of the capacitor as a function of time. The suggestion/motivation would have been to compensate for the inverse square law rule.

As to **Claim 9**, *Knapp* discloses a device for producing an optical link (Col. 1, ll. 36-45) with laser pulses (Col. 3, ll. 17-8) between an emitter (Col. 3, ll. 36-7) of the pulses and a receiver (Fig. 1, 18, receiver) of the pulses, the optical link being used by a locating device for locating a body (Fig. 1, 10, round) moving at constant speed away from the locating device, said device comprising:

a delay section (Col. 3, ll. 13-7) that delays the start of emission of the laser pulses with respect to the departure of the moving body; and

Knapp discloses pulsing the laser but does not disclose the details of how this is accomplished. *Hannan* discloses producing laser pulses by alternatively and successively charging and discharging a capacitor (Fig. 1, 23, Col. 2, ll. 25-34),

controlling the successive charges of said capacitor by successive rectangular charging pulses (the timing of switch 1 being closed defines a rectangular pulse, and may be adjusted as desired, Col. 2, ll. 27-28.)

supplying said emitter with the successive discharges of said capacitor (Fig. 1, laser diode 15 emits when the capacitor discharges.)

Hannan does not disclose that the charging pulses have linear increasing durations, however *Horblin*, *PLF*, and *Intensity* disclose certain facts known to a POSITA which would make it obvious to do so.

The first is that when designing a link between a rocket and a controller the square law dependence of irradiance on distance must be taken into account (intensity falls off by the square of the distance.) (*Intensity*.)

The second is that the energy stored in a capacitor (thereby available to be discharged as a beacon) is governed by the equation E=1/2 *C*V^2. (*PLF*.)

The third is that the voltage on a capacitor is governed directly by the width of the charging pulse. (*Horblin*.)

In view of these facts a POSITA would increase the intensity of the beacon to compensate for the square law loss. In view of the second fact, the POSITA must increase the voltage on the capacitor to achieve the higher

radiated power. In view of the last fact, increasing the charging time of the capacitor over time would achieve that goal. All of these parameters (charge voltage, charging time, capacitance, etc.) are changeable based on desired criteria as a matter of design choice.

Knapp discloses a body moving a constant speed away from the locating device. Therefore, distance is increasing at the same rate as time, and received intensity (at the locating device) is decreasing by the square of distance (and therefore time.) Because transmitted intensity (E) is related to the square of voltage (V), a linearly increasing voltage will result in an intensity increasing by the square (thus compensating for a decreasing intensity.) Linearly increasing the charge time of the capacitor achieves a linearly increasing voltage.

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to use the pulse generator disclosed by *Hannan* in the modulator disclosed by *Knapp*. The suggestion/motivation would have been to produce high power laser pulses with high efficiency. It would have also been obvious to linearly increase the charging time of the capacitor as a function of time. The suggestion/motivation would have been to compensate for the inverse square law rule.

As to **Claim 10**, *Knapp* further discloses that the said emitter comprises at least one laser diode (Fig. 4, 82, laser diode; Col. 4, l. 30.)

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,880,467 B1 to Knapp, U.S. Patent 3,371,232 to Hannan et al., U.S. Patent

4,216,520 to Horblin, Publication "Pulsed Laser Flashlamps and Power Supplies", and Publication "Intensity: the Inverse Square Law", as applied to claim 9 above, and further in view of U.S. Patent Application Publication 2002/0181055 A1 to Christiansen et al.

As to **Claim 11**, *Christiansen* discloses an optical wireless link (¶ 3) where the transmitting device is a VCSEL (¶48, last 5 lines.)

Christiansen is from the same art with respect to optical links, and therefore is analogous art.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a VCSEL as an emitter (as taught by *Christiansen*) in a system as disclosed by *Knapp*. The suggestion/motivation would have been to use a laser diode that has a narrow emission cone and less dependence on temperature (*Christiansen*, ¶48, last sentence.)

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. DOBSON whose telephone number is (571)272-9781. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel G. Dobson/

Examiner, Art Unit 2613

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613